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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,531	08/17/2001	Douglas W. Akers	B-124	4276

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EXAMINER

PALABRICA, RICARDO J

ART UNIT

PAPER NUMBER

3641

DATE MAILED: 06/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 09/932,531	<b>Applicant(s)</b> AKERS	
	<b>Examiner</b> Rick Palabrica	<b>Art Unit</b> 3641	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 April 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 7, 8, 20-24, 26-28 and 30-36 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 20-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7, 8, 26-28 and 30-36 is/are rejected.
- 7) ☒ Claim(s) 30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. Applicant's Request for Continued Examination in Paper No. 13 and Preliminary Amendment in Paper No. 14 are acknowledged. Said amendment cancels claims 25 and 29, and revises claims 20 and 26, as well as the Abstract.. The amendment is in response to Final Office Action dated 1/22/03.
2. Applicant alleges that the amendment of claim 20 does not introduce new matter because it includes limitations previously contained in claim 25. The examiner disagrees. Amended claim 20 recites a data processing system operating in accordance with a "normal activation/analysis process" or a "rapid activation/analysis process". The now canceled claim 25, on the other hand, recites a data processing system operating in accordance with a "normal activation/analysis algorithm" or a "rapid activation/analysis algorithm". An algorithm is an equation or formula for solving a mathematical problem whereas a process is a series of steps or actions associated with an operation. Thus, a process may, but not necessarily include, an algorithm.
3. Applicant traversed the rejection of claims based on the term, "lattice characteristic" being vague and undefined. Applicant alleges that he elected to use the term, "lattice characteristic" to include both lattice defects, as well as absence of lattice defects. The examiner disagrees because this allegation is not supported by the disclosure either by a definition of the term or a statement regarding an intended broad

usage of the term. Thus, it is unclear what the term, "lattice characteristic" encompasses and the metes and bounds of the claims are undefined.

Applicant further alleges that the term, "lattice characteristic" has sufficient meaning to a person having ordinary skill in the art when read in the light of the specification and the dictionary meaning of the term, "lattice defect." The examiner disagrees. Applicant's statement lacks showing that his argument is meaningful. The statement has no probative value because it is not supported by actual proof or evidence, i.e., it constitutes no more than uncorroborative statement by the applicant (see MPEP 716.01(c)).

4. Applicant traversed the use of Pongratz et al. in the rejection of claims because they allegedly disclose neither determination of "lattice characteristic" nor "output data indicative of lattice characteristic." Applicant further alleges that Pongratz et al.'s determination of the presence of a certain elements in a sample, e.g., nitrogen and/or oxygen, does not meet the requirement of "lattice characteristic." The examiner disagrees. The presence of an element, e.g., nitrogen, is a lattice characteristic of a sample because it distinguishes from the lattice characteristic of another sample that does not contain nitrogen. In addition to determining the presence of nitrogen, Pongratz et al. also determine the presence of oxygen in a sample, as well as the ratio of nitrogen to oxygen. Such ratio of elements is another lattice characteristic that would distinguish one sample from another sample. The characteristics cited by the examiner are not excluded from the applicant's claimed but undefined "lattice characteristic". See also

section 3 above. The argument regarding the output data is also unconvincing (see section 5 of the 1/20/03 Office Action).

Applicant traversed the use of Miller in the rejection of claims for the same reason as the traverse of Pongratz et al. The examiner disagrees for the same reasons given above.

Applicant might consider revising the claim language from "output data indicative of a lattice characteristic of the specimen" to "output data indicative of the presence or absence of a lattice defect in the specimen."

5. Applicant also traversed the rejection of claims as being obvious over Pongratz or Miller in view of applicant's own admission of prior art. Applicant alleges that the rejections are improper in that "they use the applicant's own disclosure as a guide for assembling the prior art." The examiner disagrees. Prior art is prior art regardless of the source of information. Just because the applicant cites a reference is prior art does not change its status. Also, MPEP 2129 [R-1] states:

"When applicant states something is prior art, it is taken as being available as prior art against the claims. Admitted prior art can be used in obviousness rejections."

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 20-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The reason is the same as that given in Section 2 of this Office Action.

7. Claims 26-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims recite "a means for activating a positron emitter" within a specimen. Note that it is a precursor that is activated, e.g., by photon bombardment, in order to produce a positron emitter. For example, a  $^{14}\text{N}$  precursor can be converted to radioactive  $^{13}\text{N}$  by bombardment of X-ray radiation. This resulting  $^{13}\text{N}$  becomes the emitter of positrons when it decays to a stable form. The positron emitter is not the one that is activated to produce the positrons.

As currently recited, the claim language implies that a positron emitter can be activated or deactivated by some means. There is neither an adequate description nor

enabling disclosure as to how and in what manner one can have a positron emitter that can be turned on and off. The examiner is unaware of any accepted law of physics that would allow on-off control of emissions from a positron emitter once it is formed.

8. Claims 1-3, 5, 7, 8, 26-28 and 30-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are vague, indefinite and incomplete.

The claims recite the limitation data indicative of a lattice characteristic. The term "lattice characteristic" is vague and undefined. What are encompassed by the term is not specified and therefore its metes and bound are undefined.

Claims 26-28 are vague, indefinite and misdescriptive for the reason cited in section 7 above.

9. Claims 1-3, 7 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,175,756 to Pongratz et al (see Fig. 1 and corresponding parts of the specification). Pongratz et al. disclose a device for detecting nitrogenous, phosphoric, chloric and/or oxygenous substances inside an object, particularly of explosives or addictive substances in pieces of luggage. He discloses an electron accelerator (1) of variable energy that generates an electron beam (2) impinging on a heavy metal target (3), creating bremsstrahlung photons (4) to scan a test object. Said photons cause creation of positron emitters in said object if it contains substances such as nitrogen,

chlorine or phosphorus (see column 3, lines 30-33). The detector is an Anger camera that is essentially a position-resolving detector system for the annihilation radiation occurring from positron annihilation. On the basis of coincidence measurements, a list of coincidence events is established which is converted in the computer (11) into a density distribution of the detected substance (see column 4, 2<sup>nd</sup> to last paragraph). The computer (11) controls the electron accelerator (1) to adjust the energy of the bremsstrahlung photons (see column 3, lines 25-28).

Applicant's claim language reads on Pongratz et al. 's invention as follows: a) "data processing system" reads on computer 11; b) "output data indicative of a lattice characteristic of the specimen being tested" reads on the data regarding the identification and density distribution of the substance detected. Note that the identity and density of a substance (e.g., an impurity) present in a given specimen indicate certain characteristics of the lattice of that specimen. See also section 4 above.

10. Claims 1-3 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 4,980,901 to Miller, who discloses an apparatus for detecting common explosive materials by measuring the relative concentration of nitrogen in an object (see Fig. 5 and corresponding parts of the specification). A source of electrons (54) is directed to a bremsstrahlung converter target (60). X-rays produced by said converter target is directed to the object (50). The resultant production of annihilation photons from the nitrogen atoms in the object is detected by scintillation counters (66), and the signals from these counters are processed by a minicomputer (68) to provide an



indication of the concentration of nitrogen in the object (see column 5, 3<sup>rd</sup> paragraph).

An accelerator is one possible source of the electrons (see column 2, lines 39-41).

Applicant's claim language reads on Miller's invention as follows: a) "data processing system" reads on minicomputer 68; b) "output data indicative of a lattice characteristic of the specimen being tested" reads on the data regarding the concentration of nitrogen in an object. Note that the identity and concentration of an element, such as nitrogen, present in an object, indicate a certain characteristics of the lattice of that object. See also section 4 above.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of Alex et al. Miller discloses the applicant's claim except of the use of a germanium detector. Miller uses scintillation detectors for detecting annihilation photons.

Alex et al. teach the use of a Ge(Li) detector for detecting gamma rays emitted by a specimen subjected to non-destructive examination by positron annihilation. One having ordinary skill in the art would have recognized that the methods of Miller and Alex et al. are based on the same positron annihilation techniques and that Ge(Li)

detector can be used in place of a scintillation detector in detecting annihilation photons.

Therefore, it would have been obvious to one having ordinary skill of the art at the time the invention was made to modify the apparatus, as disclosed by Miller, by the teaching of Alex et al. to substitute a germanium detector for the scintillation detector, as this is no more than the utilization of conventionally known designs/techniques of nuclear instrumentation within the nuclear art, and the substitution of a detector by another well-known detector.

12. Claims 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Pongratz or Miller in view of applicant's own admission of prior art on page 12 of Paper No. 14 (rapid activation/analysis process), on page 9 of Paper No. 14 (normal activation/analysis process), the specification on page 28 (on Doppler broadening algorithm), on page 29 (positron lifetime algorithm), and on page 30 (three dimensional imaging algorithm). See also section 5 on applicant's admission of prior art.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by either one of Pongratz or Miller, to include a data processing system that operates on a normal activation/analysis process when a half life of a selected positron emitter is greater than a predetermined half life and on a rapid activation/analysis process when a half life of a selected positron emitter is less than a predetermined half life, as well as including a positron lifetime algorithm, selective activation algorithm, and three dimensional

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algorithm to gain the advantages thereof (i.e., more accurate results), because such modification is no more than the use of well-known expedients within the nuclear art.

13. Claims 26, 27, 28 and 30-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Pongratz or Miller in view of applicant's own admission of prior art in the specification on page 28 (on Doppler broadening algorithm), page 29 (positron lifetime algorithm), on page 30 (three dimensional imaging algorithm), on page 12 of Paper No. 14 (rapid activation/analysis process), and page 9 of Paper No. 14 (normal activation/analysis process). See also section 5 on applicant's admission of prior art.

Note that either one of Pongratz or Miller inherently has means for activating a positron emitter because the photons produced in their apparatus continue to bombard the precursor-produced positron emitters after they are formed.

Claims 26, 31, and 36 recite the use of a Doppler broadening algorithm in the data processing system. Claims 27, 28, 33, 34 and 36 recite the use of a positron lifetime algorithm in the data processing system. Claims 32, 35, and 36 recite the use of a three-dimensional imaging algorithm in the data processing system. The admitted prior art indicates that the use of such counting techniques and algorithms is already known in the positron annihilation art. Therefore, the use of such well-known counting techniques and algorithms for either of the primary references is prima facie obvious.

***Claim Objections***

14. Claim 30 is objected to as being improper because of its dependency from a non-existing claim.

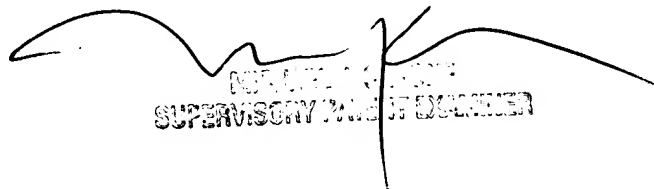
***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 703-306-5756. The examiner can normally be reached on 7:00-4:30, Mon-Fri; 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

RJP  
June 19, 2003

  
SUPERVISORY TIME IT DEPARTMENT